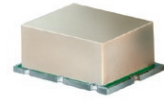


# High IP3 Frequency Mixer

## SYM-18H+ SYM-18H

Level 17 (LO Power +17 dBm) 5 to 1800 MHz



CASE STYLE: TTT167

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

### Pin Connections

LO	2
RF	1
IF	3
GROUND	4,5,6

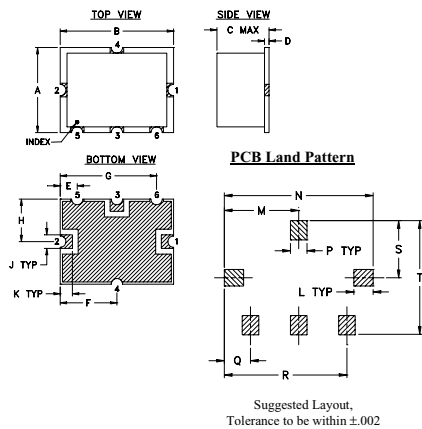
### Features

#### • Applications

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

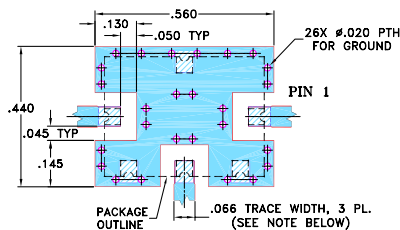
### Outline Drawing



### Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.050	.050
9.65	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.27	1.27
L	M	N	P	Q	R	S	T	wt.	
.070	.270	.540	.060	.095	.445	.208	.415		grams
1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54		0.8

### Demo Board MCL P/N: TB-12 Suggested PCB Layout (PL-079)



### Electrical Specifications

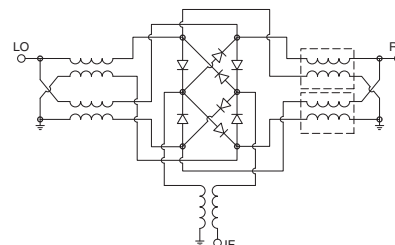
FREQUENCY (MHz)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)						
	LO/RF	IF	L	M	U	L	M	U							
5-1800	10-1500*	$\bar{X}$ $\sigma$ Max.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ.						
			50	28	45	35	40	24	39	22	50	30	30	22	30

1 dB COMP: +14 dBm typ.  
m=mid band [2f<sub>l</sub> to f<sub>u</sub>/2]  
\*Conversion loss measured at IF frequency between 10 and 1300 MHz  
L = low range [f<sub>l</sub> to 10 f<sub>l</sub>]  
M = mid range [10 f<sub>l</sub> to f<sub>u</sub>/2]  
U = upper range [f<sub>u</sub>/2 to f<sub>u</sub>]

### Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
5.00	35.00	5.61	50.30	38.90	1.58	1.80
8.00	38.00	5.53	50.90	39.40	1.36	1.78
10.00	40.00	5.56	51.30	39.60	1.31	1.78
50.00	80.00	5.41	55.80	42.20	1.22	1.77
100.00	130.00	5.39	54.70	44.40	1.25	1.73
110.48	140.48	5.34	53.80	44.10	1.29	1.74
220.45	250.45	5.68	48.00	48.90	1.43	1.73
330.43	360.43	5.61	45.10	53.30	1.55	1.59
440.40	470.40	5.72	44.40	52.20	1.76	1.50
500.00	530.00	5.55	44.30	48.10	1.80	1.51
550.38	580.38	5.65	45.40	48.00	1.94	1.39
660.35	690.35	5.82	47.50	43.10	2.08	1.33
770.33	800.33	6.21	50.80	40.00	2.30	1.32
880.30	910.30	6.46	52.20	38.70	2.35	1.25
990.28	1020.28	6.72	53.70	37.60	2.52	1.22
1000.00	1030.00	6.57	52.40	37.70	2.61	1.21
1100.25	1130.25	6.39	46.80	36.10	2.52	1.23
1210.23	1240.23	6.72	42.30	33.40	2.43	1.24
1320.20	1350.20	6.96	38.90	31.20	2.40	1.25
1800.00	1830.00	7.39	32.00	30.20	2.30	1.88

### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

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## Performance Charts

